FEBRUARY, 1924

ENTOMOLOGICAL NEWS

Vol. XXXV No. 2

GEORGE HENRY HORN
1840-1897

PHILIP P. CALVERT, Ph. D., Editor.
E. T. CRESSON, JR., Associate Editor.
HENRY SKINNER, M.D., Sc.D., Editor Emeritus.

ADVISORY COMMITTEE:
EZRA T. CRESSON, J. A. G. REHN,
PHILIP LAURENT, H. W. WENZEL.

PHILADELPHIA, PA.
THE ACADEMY OF NATURAL SCIENCES,
Logan Square

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1103,
Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, in charge of the Entomological Section of The Academy of Natural Sciences, Philadelphia, and The American Entomological Society.

ANNUAL SUBSCRIPTION, $2.50 IN ADVANCE
FOREIGN SUBSCRIPTIONS, $2.70 IN ADVANCE
SINGLE COPIES 30 CENTS

ADVERTISING RATES: Full width of page. Payments in advance.

One issue,	1 in.,	$ 1.20,	2 in.,	$ 2.40,	half page,	$ 4.00,	full page,, $ 8.00
Five issues,	"	5.50,	"	11.00,	"	17.50,	" 35.00
Ten issues	"	11.00,	"	20.00,	"	35.00,	" 70.00

SUBSCRIPTIONS AND ADVERTISEMENTS. All remittances, and communications regarding subscriptions, non-receipt of the NEWS or of reprints, and requests for sample copies, should be addressed to **Entomological News, 1900 Race St., Philadelphia, Pa.**

All complaints regarding non-receipt of issues of the NEWS should be presented within three months from date of mailing of the issue. After that time the numbers will be furnished only at the regular rate for single copies. Not more than two issues will be replaced gratis, through loss in transit or in change of address, unless such have been registered, at the subscriber's expense.

MANUSCRIPTS. Address all other communications to the editor, Dr. P. P. Calvert, Zoological Laboratory, University of Pennsylvania, Philadelphia, Pa.

TO CONTRIBUTORS. All contributions will be considered and passed upon at our earliest convenience and, as far as may be, will be published according to date of reception. The receipt of all papers will be acknowledged. Proof will be sent to authors only when specially requested. Twenty-five "extras" of an author's contribution, without change in form and without covers, will be given free when they are wanted; if more than twenty-five copies are desired *this should be stated on the MS.*

SPECIAL NOTICE TO AUTHORS

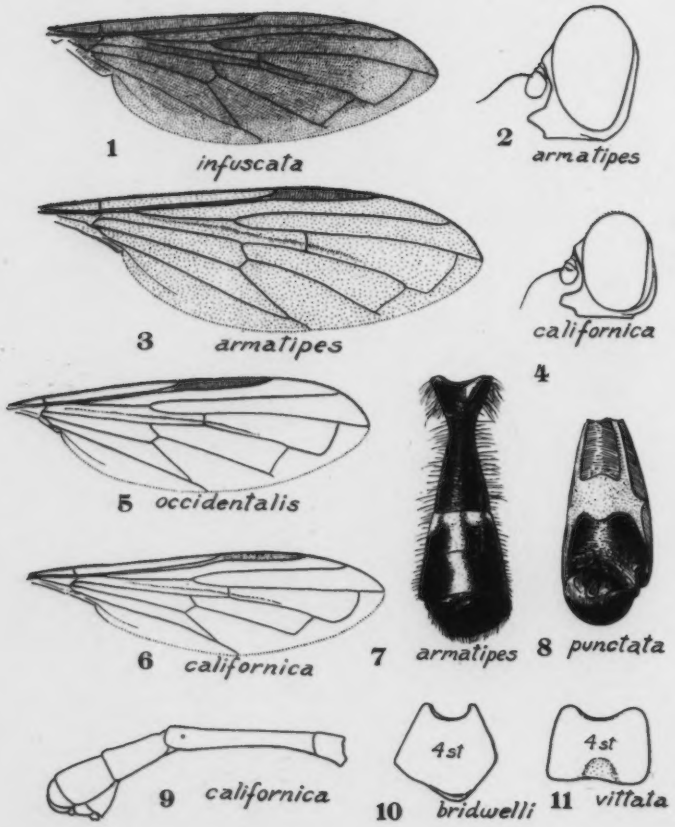
Owing to increased cost of labor and materials, no illustrations will be published in the NEWS for the present, except where authors furnish the necessary blocks, or pay in advance the cost of making blocks and pay for the cost of printing plates. Information as to the cost will be furnished in each case on application to the Editor. Blocks furnished or paid for by authors will, of course, be returned to authors, after publication, if desired.

STATED MEETINGS

Of the Entomological Section of The Academy of Natural Sciences of Philadelphia, and of The American Entomological Society will be held at 7.30 o'clock P. M. on the following dates during 1924: January 24, February 28, March 27, April 24, May 22, September 25, October 23, November 20, and Dec. 8.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the NEWS will furnish reprints of articles over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2.00; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates.



SPECIES OF SPHEGINA.—COLE.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

VOL. XXXV FEBRUARY, 1924 No. 2

CONTENTS

Cole—Notes on Diptera of the Syrphid Genus Sphegina 39
Ewing—Florida Proturans..... 44
Smith—An Annotated List of the Ants of Mississippi (Hym.) 47
Reinhard—A New Southern Tachinid Fly (Diptera)..... 54
Weiss and West—Notes on the False Indigo Lace Bug, Gelchossa heidemanni Osborn and Drake, in New Jersey (Hemip.: Tingitidae)..... 56
Alexander—Undescribed Crane-Flies from Argentina (Dipt.: Tipulidae), Part VIII..... 61
Robertson—Color Preference of Bees (Hymen.) 65
Editorial—Entomology at the Convocation Week Meetings, December 27, 1923, to January 2, 1924..... 66
Weiss and Lott—Notes on Corythucha marmorata Uhler in New Jersey (Hemip.: Tingitidae) 68
Rudolfs—Note on the mating of Anopheles maculipennis (Dipt.: Culicidae)..... 69
Malloch—A Gynandromorph of Odynerus conformis Sauss. (Hymenoptera, Aculeata) 70
Bell—An Hermaphrodite Hesperid (Lepid.: Rhop.)..... 70
Entomological Literature..... 71
Review of Ruggle's Nineteenth Report State Entomologist of Minnesota.. 75
Review of Reports on Certain Arthropods ...of the Barbadoes-Antigua Expedition 75
Obituary—Nathaniel Charles Rothschild..... 76

Notes on Diptera of the Syrphid Genus Sphegina.

By F. R. COLE, Redlands, California.

(Plate I)

The writer has been collecting material in this genus for some time and this short paper will supplement the recent work by J. R. Malloch on this group. Drawings of some of the species were made in 1918 and are published at this time as an aid to the determination of the species.

In his first paper (Proc. Biol. Soc. Wash., vol. 35, pp. 141-144, 1922) Malloch adds seven species to the seven previously known from North America, and in a later paper (Ent. News, vol. 33, pp. 266-270, 1922) describes one more species and gives a table for all the species.

Verrall says of the European species that only four or five are well defined, and he doubts if anybody has ever possessed a clearly and sharply defined series of more than one species. He goes so far as to say that the whole genus might resolve it-

self into one species—*clunipes*. The writer has a few European specimens loaned by Dr. Melander, presumably determined by Strobl. The fourth sternite, genitalia and hind tibiae differ quite distinctly in *latifrons* Egger and *clunipes* Fallen. The North American species are surely distinct and no doubt structural differences can be found in European species.

The shape of the hind tibiae, the shape and armature of the fourth and fifth abdominal sternites and the structure of the male genitalia are among the most important characters used in separating species. There is some variation in the shape of the third antennal joint in different species and the antennal arista is usually characteristic. The shape of the face and the comparative width of the frons offer additional characters. The wing venation is much the same for all forms, but cell R5 is often shaped differently, vein M1+2 curving into R4+5 at different angles. Color differences need not be relied upon for separating species but they are usually constant.

The flies of this genus are not uncommon throughout the Pacific Coast region. The writer collected five species in the Hood River Valley, only one of them known to science at the time. Some of the species are among the early spring forms found in western Oregon. The blossoms of the maple have a great attraction for them and the best collecting places are more or less shaded spots, preferably near a stream of water, where one can find maples.

Sphegina occidentalis Malloch.

This species is quite common in some regions along the Pacific Coast and has been confused with *rufiventris* Loew, a closely allied species that probably does not occur in the western United States. I have specimens from Hood River and Rock Creek (near Corvallis) in Oregon; from Vashon, Almota, Tulalip, Quilcene, Adna and Ilwaco in Washington; also specimens from Huntington Lake, and from Mt. Home Canyon, San Bernardino County, in California. The wing is illustrated in figure 5.

Sphegina californica Malloch.

I have specimens from Walnut Creek, California, the type

locality, and from Hood River, Mary's Peak (near Corvallis), and Mt. Jefferson, Oregon. This is a very slender species and is illustrated by figures 4, 6, and 9.

Sphegina armatipes Malloch.

I have a large series taken along a small stream west of Hood River, Oregon, May 20, 1917; also one specimen from Parkdale, in the upper Hood River Valley, and one from Contra Costa County, California. Figures 2, 3, and 7 illustrate the species.

Sphegina armatipes var **rufa** Malloch.

Specimens from Moscow Mount, Idaho, seem to belong to this variety. Malloch recorded a male of typical *armatipes* from this same locality. Two females have the dorsum of the abdomen reddish brown. I have seen a female of this variety taken at Mary's Peak, Oregon, May (A. L. Lovett).

Sphegina infuscata Loew.

This widespread species has a tendency to melanism in some localities. One male from Hood River has the legs and abdomen almost entirely black, and one male from Tillamook, Oregon, March 26, 1919 (A. C. Burrill) is melanic. Two specimens loaned by Dr. Melander are melanic, one a male taken at L. Waha, Idaho, June 9, the other a female from Tacoma, Washington, May 27, the latter entirely black. The melanic forms appear to have scutellum more strongly bristled. The wing is shown in figure 1.

Sphegina nigrimana new species.

♂. Length 5.5 mm. Largely shining black. Third antennal joint brown, the arista yellow, short, gradually tapering and with short pubescence. Lower face and oral margin yellow, rest of head black, with some gray pollen.

Thorax, pleura and most of hind coxae shining black. Scutellum shining black, with two apical bristles not far apart. Mesonotum and upper pleura with scant gray pollen, the pile sparse and pale.

Three basal segments of abdomen (apparently two) slightly longer than the remaining segments combined. Base of fourth tergite and most of fourth sternite reddish, rest of abdomen and genitalia shining black. Posterior margin of fourth sternite straight, on the fifth broadly indented and with a half-circular membranous portion reaching back of this; no spinules on fourth and fifth sternites.

The front four legs pale yellow, pale brown near apex of front femora, the last two tarsal joints black; hind femora black except base, the tibiae transverse at apex and with two blackish rings; hind tarsi blackish, the first joint noticeably wider than the tibiae. Wings faintly infuscated, especially towards the apex; venation as in *occidentalis* Malloch (see fig. 5).

♀. Very nearly like the male. Frons broader, almost one-third the width of head. Abdomen almost entirely black, with a faint tinge of dark red on the second tergite and two faint spots on the third.

Holotype, male, and allotype, female, in the collection of the California Academy of Sciences, taken July 16 and 28, 1921, by E. P. Van Duzee.

Type locality, Huntington Lake, 7000 feet elevation, Fresno County, California.

The species is closely related to *keeniana,* but the hind tibiae in the male do not have a spur or scoop at the tip, and there are no spinules on the fifth sternite.

Sphegina bridwelli new species.

♂. Length 6.5 mm. A species largely yellow in color. Frons and upper occiput black, the face, cheeks and lower occiput yellow. Antennae blackish brown, arista yellow and swollen at base, quite long and distinctly pubescent. Outline of face somewhat like that of *armatipes.*

Mesonotum shining black, somewhat yellow on sides. Median portion of pleura blackish brown, humeri, coxae and metanotum yellow. Scutellum yellowish brown, darker at base, rounded at apex and with apical bristles close together.

Abdomen largely yellow, some pale brown on second, third and fourth tergites. Hypopygium black above, reddish below. Third and fourth sternites without armature, the fourth very large and produced triangularly on posterior margin (see fig. 10). Right genital style much longer than the left.

Legs yellow, with faint brown marks on middle and hind femora; apex of hind tibiae darkened, and the posterior tarsi darker brown. Hind tibiae transverse at apex, without a terminal scoop, laterally compressed on the basal half and narrowly black along the line where the tibia fits against the femur. Wings hyaline, faintly smoky at apex, the venation much as in *infuscata* but the wing shaped more like that of *occidentalis.*

Holotype, male, in the collection of the California Academy of Sciences, taken August 2, 1907, by J. C. Bridwell.

Type locality, Pamelia Lake, Mt. Jefferson, Oregon, about 3,000 feet altitude.

The species runs to *californica* in Malloch's synoptic table, but the genitalia and fourth sternite are different and the antennal arista pubescent.

Sphegina melanderi new species.

♂. Length 3.8 mm. to 4.5 mm. Very nearly like *nigrimana,* but differs in having more yellow on base of hind femora, the fourth sternite smaller and only slightly excavated on the posterior margin. The third sternite is only slightly excavated on the posterior margin. The spots on third tergite are faint brownish yellow. Cell R5 is more rounded at the apex than in *nigrimana.*

♀. Very nearly like the male. Hind femora more slender than in male and all legs darker. Abdomen largely shining black; faint red spots on second tergite, larger and more distinct on the third and fourth, but without definite outline. Cell R5 more rounded at apex than in *nigrimana.*

Holotype, male, and allotype, female, in the collection of A. L. Melander, who took the specimens June 2, 1917 and August 16, 1910.

Type locality, Husum, Washington.

The allotype was taken at Quilcene, Washington, and some paratypes at Vashon and Viento in the same state. The female would run to *keeniana* in Malloch's table of species.

Sphegina vittata new species.

♂. Length 7 mm. Closely related to *armatipes* var. *rufa,* but paler in coloration and with different markings. Antennae brown, the arista yellow on the basal portion and finely pubescent.

Thorax and scutellum not shining black as in *armatipes,* but brownish yellow, paler on the humeri. Mesonotum with a broad median blackish brown vitta, not reaching scutellum and divided by a faint, narrow reddish line; two elongate spots, one on either side of the median line, narrowing posteriorly.

First and second abdominal segments brown with a yellowish tinge. Genital segments and styles yellow. Third and fourth sternites without spinules, the fourth large and with a median posterior portion that is unchitinized (see fig. 11).

Front legs yellow, the last two tarsal joints darker; hind femora yellow, a little darker at the tip; hind tibiae yellow with two faint brown rings, the process at apex of tibia rounded; hind trochanters without black setulae; hind tarsi dark brown. Wings faintly infuscated at tips, stigma pale brown; venation as in *armatipes*.

Holotype, male, in collection of California Academy of Sciences, A. L. Melander collector, May 27, 1917.

Type locality, Tacoma, Washington.

There is one male paratype taken at the same time and place. A female specimen taken by Dr. Melander at Glacier Station, Mt. Rainier, Washington, August 15, 1917, probably belongs here, but the mesonotum is shining black and the abdomen almost entirely yellow.

Florida Proturans.

By H. E. EWING, Bureau of Entomology, U. S. Department of Agriculture.

On several occasions while in the state of Florida during the months of May and June, 1922, I made a particular effort to collect specimens of the primitive order Protura. All efforts, however, except one, proved vain. But on that one occasion many specimens were obtained. While waiting for an auto to take me back to the town of Orlando, on May 26, I began to investigate an accumulation of dead leaves and other organic matter under a mammoth camphor hedge which marked the division between two citrus orchards. The leaves were rather loose and fully a foot deep on the ground. Those on or near the top were dry, but those nearest the ground were wet and considerably packed together. Among the latter, where swarmed hundreds of mites, springtails and other minute Arthropods, were found Proturans in some numbers.

The specimens then obtained have now been determined and are found to belong to three species, one of them being new. This new species, a member of the genus *Acerentomon*, is here described.

Acerentomon floridanum, new species.

Head about one-and-two-thirds times as long as broad. Pro-

cess of labrum (or rostrum) vestigial or wanting. Pseudoculi conspicuous, circular, dorso-lateral and situated slightly behind the middle of the head. Setae on head of moderate length.

Thorax almost twice as long as head; prothorax with upper side about twice as broad as long; mesothorax much larger than prothorax but smaller than metathorax; metathorax considerably broader than long. First two thoracic segments without tergal apodemes, but the metathorax has a short, slightly bent, unbranched, tergal apodeme that falls far short of reaching the sides of the body. First legs fully twice as long as head and when extended forward reaching beyond the latter by the full length of the tarsi and about four-fifths the length of the tibiae. Second and third legs subequal, about three-fifths as long as the first legs. Tarsus I with a long claw, straight for the first half of its length, then only slightly curved beyond. Tarsi II and III each with a much smaller claw than I and curved throughout.

Abdomen of the usual shape. Typical tergal apodemes, as represented by those on segments V and VI as follows: Gently bowed at the middle; first branch arising not far from the median line and extending laterally, forward and downward, as a tapering chitinous rod to about one-half the distance to the pleura; second branch of apodeme given off posteriorly at a distance about equal to that from the origin of the first branch to the median line; it follows an irregular course laterally and backward and may itself be branched. Eighth abdominal segment as long as ninth, tenth and eleventh taken together, and with a simple tergal apodeme that is much thickened at the middle. Vestigial abdominal appendages of the usual type.

Length of female specimen when extended to maximum, 1.3 mm.; width 0.21 mm.

Type locality.—Orlando, Florida.

Type slide.—Cat. No. 23766, U. S. N. M.

Description based on holotype, a female, and fourteen other female specimens. No males or young taken. This species is most nearly related to *A. microrhinus* Berlese, but is smaller and lacks the process of labrum, or rostrum.

The fact that only female specimens were taken would indicate that the annual reproductive cycle for these hexapods starts much earlier in Florida than in Maryland or any of the other

more northernly situated states. In Maryland only adults are taken late in the fall or winter. The males die off rapidly during the spring, and in May young individuals usually predominate over adults.

The five known species of the genus *Acerentomon* may be separated as follows:

Key to the Known Species of Acerentomon Silvestri (1907).

a^1. Median process of labrum (rostrum) either vestigial or wanting ..... *A. floridanum,* new species.

a^2. Median process of labrum (rostrum) present and not vestigial .....

b^1. Bifurcations, or branches, of tergal apodemes of abdomen indistinct and apparently lacking for most of the large abdominal segments *A. microrhinus* Berlese.

b^2. Bifurcations, or branches, of tergal apodemes of abdomen broad and conspicuous for most of the large abdominal segments.

c^1. Total length when segments are extended to maximum but little over one millimeter; rostrum short, not over half as long as the distance between the pseudoculi ..... *A. conurus* Ewing.

c^2. Total length when segments are extended to maximum considerably over one-and-one-half millimeters; rostrum long and very sharp-pointed, about as long as the distance between the pseudoculi.

d^1. Seventh tergal apodeme of abdomen either unbranched, or at most seen to be indistinctly branched when viewed laterally; head, exclusive of the rostrum, not over one-and-three-fourths times as long as broad *A. doderoi* Silvestri.

d^2. Seventh tergal apodeme of abdomen typical of those in front of it being broadly forked laterally and the posterior ramus thus formed being again forked; head, exclusive of the rostrum, twice as long as broad *A. americanum* Ewing.

The other two species taken in Florida are *Acerentuloides bicolor* Ewing and *Eosentomon minimum* Ewing. Of the former species, two females were collected, of the latter, one female. Again the absence of males and nymphs is noted.

An Annotated List of the Ants of Mississippi (Hym.).

By M. R. SMITH, A. and M. College, Mississippi.

The need for lists of insects common to certain localities is becoming more appreciated each day. Not only are accurate lists almost indispensable to the systematist but they are also the source of much help to the economic entomologist. This list, although not complete by any means, is being published with the idea that it will make known to some extent the characteristic ant fauna of the Gulf States; an area in which there has never been any consistent collecting for ants until recently. The ant fauna of the South Eastern and the South Western States is fairly well known, so this list will tend to bridge the intervening gap.

The genera best represented in Mississippi are *Pheidole, Crematogaster* and *Camponotus,* others such as *Myrmica, Pogonomyrmex, Tapinoma,* etc., have only one species.

Of the 76 species, subspecies and varieties recorded in this paper, 7 are imported species, namely: *Monomorium pharaonis, Tetramorium guineense, Prenolepis longicornis, Iridomyrmex humilis, Solenopsis rufa, Pheidole floridana* and *Camponotus socius.* Two of the species mentioned, *Iridomyrmex humilis* and *Monomorium pharaonis* are of considerable economic importance as house ants.

This list also includes two new species of *Colobopsis* and one new variety of *Aphaenogaster* which have recently been found in Mississippi.

The writer could enlarge this list by adding species which will no doubt be taken in the state in later years, but since there are always chances for errors in doing this, he prefers to list only the species which are definitely known to occur in Mississippi.

The species here listed, include specimens collected by the writer, those given him by friends, and specimens in the collections of the Mississippi A. and M. College. The writer particularly wishes to acknowledge here the kind assistance of Mr. Andrew Fleming, who has furnished numerous specimens and notes.

Dr. W. M. Wheeler has very kindly aided the writer by determining a number of the more difficult species. Professor R. W. Harned has offered much encouragement and been very generous in the allotment of time for such work.

Family FORMICIDAE.

Subfamily PONERINAE.

1.—**Ponera trigona** Mayr. var. **opacior** Forel.

A. and M. College. This uniform, brownish colored species has been taken a number of times here at the college; no doubt it occurs throughout the state. *P. opacior* nests under logs in the woods where there is plenty of moisture available. The ants are very timid and not always easy to capture.

This ant may be distinguished from the other species of the genus by the worker having her eyes located near the anterior fourth of the head; joints 3-6 of the antennal funiculi are much broader than long.

2.—**P. coarctata** Latr. subsp. **pennsylvanica** Buckley.

This ant has been reported by Mayr to occur in Mississippi, but so far the writer has not been able to take it in the state, although he has collected in various localities.

P. pennsylvanica is somewhat larger than the species mentioned above and may be distinguished from it by the very distinct punctation of the head and by the darker color of the body, usually black. It is a very common ant in the Northern and North-eastern States where it lives under stones, logs, or leaf mold in the woods in the presence of abundant moisture.

Subfamily MYRMICINAE

3.—**Pseudomyrma brunnea** F. Smith.

Gulfport; Sibley; Ocean Springs. This ant has been found nesting in the twigs of white ash, *Fraxinus americana,* and in the twigs of the so-called China berry tree, *Melia Azedarach.* Very little is known concerning its habits but it is believed to feed principally on honey dew. This and the other species of *Pseudomyrma* appear to occur only in the lower part of the state.

P. brunnea, as its name indicates, is a brownish colored species which may be easily distinguished by its distinct coloration.

4.—**P. pallida** F. Smith.

Pascagoula; Union City; Sibley. This ant has been found to nest in the twigs of China berry trees also. It most probably nests in the stems of other trees and plants.

The writer has for some time believed that this and the following species are the same, *flavidula* being nothing more than a nest variety. Specimens from numerous nests show considerable variation in color, ranging from the pale yellow of *pallida*, without spots at the base of the abdomen, to the distinct yellow of *flavidula* which has a definite black spot on each side of the base of the abdomen. If these two species should prove to be the same, *flavidula* would become a synonym of *pallida* since the latter species was described at an earlier date.

5.—**P. flavidula** F. Smith.

Bay St. Louis; Gulfport; Sibley. Nests of this ant have been found in the twigs of China berry, pecan, swamp dogwood, white ash, etc. The habits of this species are like those of the two *Pseudomyrmae* mentioned above.

6.—**Leptothorax curvispinosus** Mayr.

A. and M. College; Fulton; Tupelo. This species usually nests in galls or twigs but has been reported to nest in decaying wood. Workers are very often seen licking up honey dew on the leaves of trees and plants. It is one of the most common species of *Leptothorax* in Mississippi.

L. curvispinosus is a small, yellowish ant with characteristic, long, curving, thoracic spines from which the ant gets its name. A dark spot is present near the base on each side of the first gastric segment.

7.—**L. fortinodis** Mayr.

A. and M. College; Okolona; Rara-Avis; Tupelo; Sibley. Without doubt this is the most common species of *Leptothorax* in Mississippi. The ants nest in oaks and other trees and can be found crawling up and down the trunks or entering small holes in the bark.

This species can be distinguished from the other species of *Leptothorax* here mentioned by its dark or blackish color, absence of the meso-epinotal constriction, the presence of short,

dentiform, thoracic spines and the rather prominently enlarged petiole.

8.—**L. schaumi** Roger.

A. and M. College. This pretty, yellowish red species has been taken on numerous occasions here at the College. The ants have been collected from oak logs and oak trees. Evidently this species has the same nesting habits as *L. fortinodis*.. A nest found in a niche of a dead cottonwood tree contained 31 workers, 2 queens, and a number of larvae.

L. schaumi is closely related to *fortinodis* in general appearance and habits. It may be separated from the latter by its yellowish red color, and its much smaller petiole. *Schaumi* like *fortinodis* has no distinct meso-epinotal constriction.

9.—**L. (Dichothorax) pergandei** Emery.

A. and M. College. This is distinctly a ground-nesting species, the workers of which may be easily confused with the workers of *Pheidole* upon superficial examination. Because the workers forage singly their nest is hard to locate.

L. pergandei can be distinguished from the other ants of this genus by its 12-jointed antennae, pronounced meso-epinotal constriction, and by the abundance of long white hairs covering the body.

10.—**Aphaenogaster treatae** Forel.

A. and M. College; Rara-Avis. Nests of this ant are constructed in the ground in shady places. The workers forage singly, feeding on smaller insects, etc. Because of their slender build they can run very rapidly and for that reason are exceedingly hard to capture.

The worker is easily recognized by the prominent lobe at the base of the antennal scape.

11.—**A. treatae** subsp. **harnedi** Whlr.

Caesar. This subspecies, which was named for Professor R. W. Harned, is distinguished from *treatae* by its much shorter and narrower antennal lobes and by the more opaque coloration of the thorax, petiole, post-petiole and basal half of the first gastric segment.

12.—**A. fulva** Roger.

Meehan Junction; Rara-Avis. Nests of this species are built in rotten logs in dense forests. This species does not seem to be as common in Mississippi as *treatae*.

A. fulva is a slender, reddish brown ant with epinotal spines which are about one half the length of the base of the epinotum.

13.—**A. mariae** Forel.

Rara-Avis. Only one specimen of this rare species has been taken in the state. *A. mariae* is thought to be parasitic on *A. fulva* and its varieties.

This species can be distinguished from any of the other *Aphaenogasters* by the base of the first gastric segment being longitudinally striated.

14.—**A. lamellidens** Mayr. var. **nigripes** Smith.

A. and M. College; Columbus. This variety has nesting habits similar to those of *A. lamellidens*.

This is a variety of the species which may be easily recognized by its distinctly dark colored legs.

15.—**Monomcrium minimum** Buckley.

A. and M. College; Greenville; Yazoo City; Sibley. This little, shining black species is very widely distributed throughout the state. It may be found nesting in the soil, trees, rotten logs, and houses. The workers feed on honey dew and on smaller insects. "The tiny black ant," as it is called, is one of the most common house-infesting species that we have in Mississippi. According to housekeepers, the ants show a preference for greasy foods, such as meat, lard, butter, etc.

16.—**M. pharaonis** Linn.

Columbus; A. and M. College. This imported species is well distributed throughout the state. Unlike *minimum*, it lives only in greenhouses, dwellings, stores, etc., and is never found nesting in the open, so far as the writer knows. It is a very common house-infesting ant.

M. pharaonis can be easily separated from *minimum* by its distinct, pale yellowish color. It is commonly called "the tiny red ant," or "Pharaoh's ant." There is an infuscated spot on

each side of the base of the first abdominal segment. This species bears a superficial resemblance to *Solenopsis molesta* but may be distinguished from that species by its larger size and by the fact that it possesses a three-jointed antennal club instead of a two-jointed club like *molesta*.

17.—**Trachymyrmex septentrionalis** subsp. **obscurior** var. **seminole** Whlr.

Columbus; A. and M. College. This is the only fungus-growing ant known in the state and is easily recognized by the numerous tubercules and spines on the body of the workers. Nests are constructed in sandy soils in shady locations. The nests, which are most common in the early spring months, can be identified by the crescentic shaped mass of excavated earth which is placed from a foot to a foot and a half from the entrance to the nest. Oak catkins, caterpillar excrement, etc., is used by the workers on which to cultivate the fungus and, so far as is known, the ants depend entirely on this as a source of food. Later in the year the extreme hot weather causes the ants to plug the gallery to their nests in order to prevent evaporation of the moisture, since the ants and the fungus are entirely dependent on excessive moisture for their growth and development.

18.—**Myrmica scabrinodis** subsp. **schencki,** var. **emeryana** Forel.

Rara-Avis. This is the only species of *Myrmica* known to occur in Mississippi. A number of workers were collected in a low, damp spot in the hilly northeastern section of the state.

This species can be easily recognized by its very distinct rugose head and thorax and by the exceedingly large lobes at the base of the antennal scapes.

19.—**Pogonomyrmex badius** Latr.

Lucedale; Gulfport; Laurel; Star; Clara; Ocean Springs. This ant is commonly known as "The Florida Harvester" because of the fact that the workers feed principally on seeds. It is the only species of *Pogonomyrmex* known to occur in Mississippi. The nests are fairly large mounds usually constructed

in sandy areas. The workers can sting severely and this species is without doubt our worst stinging ant. This ant seems to be confined altogether to the central and southern part of the state.

"The Florida Harvester" is a large reddish ant with heavily striated head and thorax. The epinotum is bare of spines.

20.—**Pheidole pilifera** Roger.

A. and M. College. This is not a very common ant in this locality being more strictly a northern form. Nests are built in pastures or grassy spots in fields. The workers are known to store seed in the nest for food.

Soldiers of this species have exceedingly large heads, so large that their heads are out of proportion to their bodies; this will serve to distinguish them from any of the other *Pheidoles* which occur in Mississippi. They bear a closer resemblance to *P. sitarches rufescens* than to any other species of the genus in Mississippi.

21.—**P. sitarches** subsp. **rufescens** Whlr.

A. and M. College. This is a much more common species than the one just mentioned above. *Sitarches,* although resembling *pilifera* somewhat in color and structure, lacks the exceedingly large head which is common to *pilifera.* This is also a soil nesting species, with habits similar to those of *pilifera.*

Sitarches is a reddish, opaque colored species with head, thorax, petiole and post petiole bearing abundant, closely set punctures.

22.—**P. morrisi** var. **vanceae** Forel.

Starkville; Sturgis. Nests of this species are always built at the base of clumps of grass, usually of the genus *Andropogon.* When the nest is disturbed, numerous workers and soldiers rush forth angrily. Occasionally they get on the collector's hands and when they nip the flesh in a tender place the bite is rather noticeable. It is by far the most courageous species of *Pheidole* in Mississippi.

The soldiers of this species can be easily recognized by the vestigial spines on the epinotum and by the presence of long, abundant hairs over all portions of the body.

23.—**P. crassicornis** Emery.

McHenry. This does not seem to be a common species in Mississippi, at least not in the eastern part of the state, where the writer has done most of the collecting. It probably nests under stones and logs and feeds on insects.

P. crassicornis, as its name indicates, may be distinguished from the other species of *Pheidole* in this state by the distinctly flattened antennal scapes and by the deep reddish color of the head and thorax of the soldier.

24.—**P. vinelandica** Forel.

A. and M. College; Tunica; Decatur. This is one of the smallest members of the genus in Mississippi, and one of our most common ants. Nests are constructed in the soil and the earth thrown out to form a small crater, which is about an inch in diameter. The workers feed on insects and small seeds.

Because of her small size there is no danger of confusing the soldier of *vinelandica* with the soldier of any other *Pheidole* except *floridana*. The latter species has a deeply punctate thorax which *vinelandica* does not have. *Vinelandica* has a much larger and broader head in proportion to the body and also has very prominent thoracic angles.

(To be continued)

A New Southern Tachinid Fly (Diptera.)

By H. J. REINHARD, Texas Experiment Station,
College Station, Texas.

Cuphocera aurifrons n. sp.

♂. Black, grayish, pollinose, thorax and abdomen sub-shining, length 9 to 12 mm. Eyes bare. Head slightly wider than thorax, diameter at vibrissae much shorter than at base of antennae. Sides of front opaque, yellowish, pollinose, clothed with long fine erect hairs. Vitta rather obscure, yellow, narrow at vertex, widening at base of antennae. Front at narrowest point about one and one-fourth times as wide as either eye. Basal joints of antennae yellow, third brown or blackish, except on base and inner side. The latter joint broad and decidedly rounded on the front edge, at most but slightly longer than second. Arista black, rather short, thickened almost to tip, second joint elongated. All macrochaetae of head strong. Orbital bristles absent. Ocellars usually absent, but occasionally

represented by weak proclinate bristles. Inner and outer verticals equal, the inner pair strongly cruciate. Frontals in two rows on each side, diverging below and descending almost level with apex of second antennal joint. Median depression, genae, and sides of face silvery white. The latter at the lower corner of the eye bearing two macrochaetae more or less surrounded by short black hairs which extend upward to lowest frontals in an irregular row along margin of the eye. Vibrissae strong, cruciate, situated slightly above the prominent front border of oral margin. Facial ridges practically bare. Cheeks nearly four-fifths the eye height, sparsely covered with black bristles and bearing a row of macrochaetae along the oral margin. Beard dense, short and whitish in color. Proboscis moderately long, once geniculate, distal segment ridged, brownish-black, shining. Labella small, brown or yellowish. Palpi absent.

Thorax grayish, pollinose, with four distinct vittae, the inner pair narrow and becoming obsolete near middle of dorsum, the outer pair more conspicuous, broadly interrupted at the suture. Postsutural dorsocentral bristles three, sternopleurals three. Pleurae cinereous, pollinose. Scutellum gray, pollinose, yellow apically, with three pairs of long, marginal macrochaetae and a shorter, cruciate, apical pair.

Abdomen ovate, white pollinose, dorsum with reflecting spots. First three segments black, sides of second and third occasionally tinged with yellow, last segment rufous. All macrochaetae marginal, except on last segment, which bears a discal and sub-discal row.

Legs dark, thinly pollinose, coxae, knees and tibiae yellowish, bristles on the outer side of middle tibiae, unusually long. Hind tibiae not ciliate. Pulvilli tawny, front pair nearly as long as last tarsal joint, claws elongate.

Wings grayish, hyaline, costal spine obsolete. First posterior cell narrowly open, terminating far before wing tip. Veins yellow. Third vein bristly almost or quite to small crossvein, all others bare. Hind cross vein oblique, posterior end at less than one-third the distance from bend to small crossvein. Bend of fourth vein angular, with a very short stump or distinct fold. Calypteres whitish, tinged with faint yellow along the border.

♀. Similar to male differing as follows: Front distinctly wider, orbital bristles present, and the outer row of frontal bristles reduced to one or two posteriorly directed macrochaetae situated between the inner row and the orbitals. Pulvilli short.

Described from many specimens of both sexes, collected at College Station, May-November, 1917-23 (H. J. Reinhard). *Type*: Male, deposited in the U. S. National Museum.

This species probably has been confused with *fucata* v. d. W. described from Mexico. Coquillett, in his *Revision*, p. 140, referred several northern specimens here, but unfortunately none of these are available for comparison. Subsequent to the publication of his paper he added the following note, "sides of front opaque." In Biol. Cent. Amer., Vol. II, p. 476, van der Wulp described *fucata* as having front laterally shining bluish-black and third antennal joint twice as long as the second. These characters do not agree with any specimens of the series from which this species has been described.

Notes on the False Indigo Lace Bug, Gelchossa heidemanni Osborn and Drake, in New Jersey (Hemip.: Tingitidae).

By Harry B. Weiss and Erdman West, New Brunswick, New Jersey.

Smith (*Insects of New Jersey*, p. 149) records this species under the name *Leptostyla oblonga* from several localities in New Jersey and these together with the localities listed by Barber (Circ. 54, N. J. Dept. Agric. 1922) indicate rather a wide distribution in the state. As a matter of fact the species is distributed over a large part of the United States, occurring on the false indigo *Baptisia tinctoria* L. Osborn and Drake (Ting. of Ohio. Ohio Biol. Survey Bull. 8, Vol. II, No. 4, p. 238, 1916) cite localities in Arkansas, Washington, District of Columbia, and Massachusetts. McAtee (Bull. Brook. Ent. Soc. Vol. XII, No. 3, pp. 63-64, 1917) states that it is common about Washington, D. C., and mentions also the states of Massachusetts, New Jersey and Louisiana. In the *Hemiptera of Connecticut* (p. 705) it is listed as occurring at several places. Parshley records it from several localities in Massachusetts in his *Fauna of New England, Hemiptera-Heteroptera*, (Occas. Papers Bost. Soc. Nat. His. VII). Van Duzee (Cat. Hem.

Amer. No. Mex. p. 218, 1917) gives its distribution as Massachusetts, Pennsylvania, District of Columbia, Maryland and Arkansas.

Nothing appears to have been recorded concerning its life history and the following notes relating to observations made mainly at Monmouth Junction but also at South Amboy, Hornerstown, Prospertown, Lahaway and High Bridge, New Jersey, supply some of this information. In the central portion of New Jersey overwintering adults appear about the last week of May and persist in more or less plentiful numbers until about the middle of June. As a rule the adults inhabit the lower surfaces of the leaves and do noticeable feeding, causing white areas to appear on the upper surfaces. Eggs are deposited during the last of May and first part of June and the young nymphs become plentiful about the middle of June. By the last of June and first week of July many last stage nymphs are in evidence and adults issue shortly afterwards, becoming numerous from the beginning of the second week of July until the end of the month. There is apparently only one brood and the adults gradually disappear during August.

The eggs are deposited singly, or in irregular groups of two or three, in the lower tissue of the leaf either near or away from the midrib. Each egg is embedded well in the tissue with the long axis of the leaf parallel with the leaf surface and with only the truncated, oval end of the neck of the egg visible as it projects slightly beyond or remains flush with the leaf surface. These oval ends resemble stomata somewhat and are similar in color to the leaf. After hatching the young nymphs appear to feed close to the midrib, assuming a position as a rule, parallel to this part of the leaf. As they become older they feed in colonies of 10 or 12 on the lower surface, although many leaves may contain more and some only 1 or 2 nymphs. Usually both adult and nymphal feeding is well scattered over the plant. In severe infestations, which often occur, every leaf is white and hundreds of whitish nymphs and adults inhabit each plant. Such a condition existed at Prospertown, N. J., on July 18, when hundreds of adults and a very few last stage nymphs were

observed on the whitened plants. Five nymphal stages were observed and the following descriptions indicate the changes which take place in the development of the insect from egg to adult.

Egg. Length 0.39 mm. Width 0.1 mm. Smooth, yellowish-white, translucent, somewhat cylindrical, flask-shaped with the broad neck-like portion bent to one side. Truncate end of neck-like part suboval, opposite end broadly rounded with diameter slightly less than that of middle portion of egg.

First Stage Nymph. Width of head including eyes 0.1 mm. Length about 0.45 mm. White or white slightly tinged with yellow. Subrectangular, pointed at anterior and posterior ends. Antennae slender, 4-jointed, as long or almost as long as body. Eyes lateral, red, consisting of 5 distinct ommatidia. Head, thorax and abdomen subequal in width. Prothorax twice as long as mesothorax; remainder of thoracic and abdominal segments subequal in length. Legs long, whitish. Sheath of rostrum reaching to between the third pair of legs. Armature similar to that of the third stage. Triangular group of three spines on the head, the two spines on the posterior margin of the head and the single median, dorsal, abdominal spines quite pronounced; remainder minute.

Second Stage Nymph. Width of head including eyes 0.15 mm. Length about 0.72 mm. Shape suboval or elliptical. Whitish except for large spines which are brownish. Antennae, eyes, legs, etc., similar to those of preceding stage. Tip of rostrum reaching to between the third pair of legs. Spines minute, similar in position to those of the third stage; the pair on the posterior margin of the head and the single, median, dorsal spines on abdominal segments 2, 5, 6 and 8 being comparatively long and prominent.

Third Stage Nymph. Width of head including eyes 0.2 mm. Length about 0.95 mm. Shape elongate-oval or elliptical, sides subparallel, converging acutely anteriorly and posteriorly. Whitish except for portions of legs, pair of spines on head and long, median dorsal spines on abdomen which are brownish. Antennae slender, 4-jointed, almost as long as body, third joint longer than other three combined. Eyes lateral, prominent, red, consisting of several ommatidia. Head sub-globular. Prothorax wider than head, subrectangular in shape and about as long as mesothorax. Mesothorax subrectangular, slightly wider than prothorax. Metathorax about one-half as long as mesothorax. Head bearing three rather prominent, median spines, arranged triangularly, also a median pair of long spines on the posterior

edge. Prothorax with two pairs of small, median, dorsal spines, one pair posterior to the other and a single spine on each lateral edge. Mesothorax with pair of median, dorsal spines and a single spine on each lateral edge. Metathorax with a minute pair of median, dorsal spines. First abdominal segment with a minute pair of median, dorsal spines. Second abdominal segment with a single, prominent, median, dorsal spine. Abdominal segments 5, 6 and 8 each with a rather prominent single, median, dorsal spine. Single lateral spines on abdominal segments 1 to 9, those on segments 1 to 3 being minute and the remainder quite pronounced. Each spine arising from a tuberculate base and bearing a minute hair at or near tip. Tip of rostrum reaching to between the third pair of legs. Legs comparatively long.

Fourth Stage Nymph. Width of head including eyes 0.25 mm. Length about 1.4 mm. Similar in shape and color to preceding stage. Spines more pronounced. Armature similar to that of preceding stage except that lateral spines are absent from the first abdominal segment. Wing pads of mesothorax suboval, extending laterally slightly beyond edges of mesothorax and posteriorly to or slightly beyond the first abdominal segment. Tip of rostrum extending to between second pair of legs.

Fifth Stage Nymph. Width of head including eyes 0.3 mm. Length about 1.8 mm. Color white except as noted. Shape elongate-oval or subelliptical. Antennae almost as long as body, light brown, sparsely hairy, hairs minute; 4-jointed, third joint longer than the other three combined. Eyes prominent, lateral, red, consisting of numerous ommatidia. Head subglobular, bearing a minute tubercle between the base of each antenna and eye, also three rather prominent, median spines arranged triangularly and a pair of prominent spines on median portion of posterior margin.

Prothorax somewhat shield-shaped, anterior margin transverse, sides projecting outward slightly, posterior margin ending in an obtusely angled point; anterior margin bearing a pair of small median spines which are white; prothorax bearing a pair of dorsal, median spines and one spine at each posterior, lateral angle. Lateral edges of prothorax bearing minute hairs or spine-like hairs. Mesothorax partly covered by posterior projection of prothorax and bearing a pair of prominent, median, dorsal spines on posterior edge. Wing pads of mesothorax elongate, narrow, projecting back to fifth abdominal segment. Wing pads of metathorax slightly longer. Mesothoracic wing pad bears a prominent spine on lateral edge about beginning of posterior third; anterior to this spine along the lateral edge are

several spine-like hairs. Metathorax with a dorsal, median pair of greatly reduced white spines or tubercles.

Lateral edges of abdomen slightly margined, anal segment tubular. First abdominal segment bears a pair of median, dorsal, greatly reduced spines or tubercles. Prominent median, dorsal spines on abdominal segments 2, 5, 6, 7 and 8, the one on the seventh segment sometimes being absent. Single spines on posterior lateral edges of abdominal segments 4, 5, 6, 7, 8 and 9. All spines on body dark or dark-tipped except the two, median, dorsal, prothoracic pairs, and the lateral, abdominal spines on segments 4 to 8, which are white. Sometimes the median, dorsal spine on the fifth abdominal segment is white. All spines except lateral, abdominal ones are directed vertically or nearly so. Legs long whitish or slightly browned, bearing a few minute hairs. Tip of rostrum reaching almost to between the second and third pair of legs. Minute spines present on lateral edges of abdominal segments 2 and 3 which were present in stage four are missing in stage 5.

Adult. This was described by Osborn and Drake in 1916 (Ohio Biol. Survey Bull. 8, Vol. II, No. 4, p. 238) and need not be repeated here. Van Duzee in his *Catalogue of the Hemiptera of America North of Mexico* places *heidemanni* O. & D., as a synonym of *Leptostyla clitoriae* Heid., but both are distinct species. Moreover the eggs of *clitoriae* as described by Heidemann (Proc. Ent. Soc. Wash. XIII, p. 137) are ovate, black and deposited upright on the under leaf surface of *Clitoria mariana,* whereas the eggs of *heidemanni* are of a different shape and embedded in the leaf tissue of *Baptisia tinctoria.* Parshley in the *Hemiptera of Connecticut* (P. 705) and McAtee (Bull. Brook. Ent. Soc. Vol. XII, No. 3, pp. 63-64, 1917) state that Mr. Heidemann's cabinet name for the species was *L. affinis* and Parshley further states that the species has usually been referred to as *oblonga* Say. Drake (Mem. Carn. Mus. Vol. IX, No. 2, p. 372, 1922) writes that the genus *Leptostyla* was first established in 1864 by Paolo Lioy for a genus of *Muscidae* (*Diptera*) and has priority over *Leptostyla* Stål, 1873 (Hemiptera). This was recognized by Kirkaldy in 1904 (Entom. XXXVII, p. 280) who proposed the name *Gelchossa.*

Undescribed Crane-Flies from Argentina (Dipt.: Tipulidae). Part VIII.

By CHARLES P. ALEXANDER, Amherst, Massachusetts.

The four new species of *Dicranomyia* described at this time were collected in the Province of Córdoba by Dr. Bruch, and in the Province of Jujuy by Engineer Weiser, to both of whom I am greatly indebted for numerous specimens of Argentinian Tipulidae. The types are preserved in the writer's collection through the kindness of the collectors.

Dicranomyia flavofascialis sp. n.

Antennae with the scalpal segments obscure brownish yellow, the flagellum dark brown; head with a grayish yellow bloom; mesonotum dark reddish brown, the praescutum with three, brownish black stripes; scutal lobes brownish black; pleura largely dark brown; femora with the tips broadly yellow and with a more or less distinct subapical brown ring; wings yellowish subhyaline; stigma and indistinct seams along the cord and outer end of cell *1stM*$_2$ darker; vein *Sc* short; abdomen dark brown, the segments ringed caudally with yellowish.

♂. Length 8.2-8.5 mm.; wing 9.4-10 mm. ♀. Length 8.5-10.5 mm.; wing 8.5-11.5 mm.

Rostrum and palpi dark brown. Antennae with the scapal segments obscure brownish yellow; flagellar segments oval, dark brown. Head dark with a greyish yellow bloom; vertex between eyes narrow.

Mesonotal praescutum dark reddish brown with three, brownish black stripes, the median stripe broad, becoming indistinct before the suture; scutum pale medially, the lobes brownish black; scutellum yellowish medially, the lateral margins brownish black; postnotum dark brown, the lateral margins narrowly obscure yellow. Pleura dark brown, the dorsal margin of the sternopleurite more yellowish; remainder of sternopleurite dark brown. Halteres pale brown, the knobs and distal half of the stem brown.

Legs with the coxae obscure yellow, the outer faces more or less darkened; trochanters dull yellow; femora pale brown with the tips broadly and conspicuously light yellow, preceded by a dark brown ring; tibiae and tarsi brown.

Wings yellowish subhyaline; stigma suboval, brown; narrow and very indistinct seams along the cord and outer end of cell *1st M2*; veins dark brown. Venation: *Sc* short, ending opposite or slightly before the origin of *Rs, Sc2* a short distance

from the tip, *Sc*1 alone being about equal to the outer deflection of *M*3; *Rs* about one-half longer than the deflection of *R*4+5; cell *1st M*2 closed; basal deflection of *Cu*1 at the fork of *M* or nearly so.

Abdominal tergites dark brown, the posterior margins of the segments conspicuously and broadly ringed with dull yellow; sternites obscure yellowish brown, similarly ringed with yellow.

Holotype: ♂, La Granja, Alta Gracia, Córdoba, April 1-8, 1920, (C. Bruch). *Allotopotype*: ♀. *Paratopotypes*: 30 ♂ ♀.

Dicranomyia flavofascialis is closely related to *D. andicola* (Alexander) but is readily told by the darker coloration of the thorax and abdomen, the less distinct brown pattern on the wings, and the subterminal brown ring on the femora.

Dicranomyia patruelis sp. n.

Antennae dark brown, the first scapal segment obscure brownish yellow; flagellar segments oval; head light brown; mesonotum obscure yellow, the praescutum with three, broad, dark brown stripes; scutellum dark brown with a pale median line; halteres long and slender; legs uniformly brown; wings yellowish subhyaline, the stigma pale brownish yellow; *Sc* short, cell *1st M*2 closed; abdominal tergites uniformly dark brown.

♂. Length 8 mm.; wing 9 mm. ♀. Length 9 mm.; wing 10 mm.

Rostrum and palpi dark brown, the former elongate. Antennae with the basal segment obscure brownish yellow, the remainder of the organ dark brown, the flagellar segments oval. Head light brown, somewhat narrowed behind.

Pronotum long and narrow, dark brown above, paler laterally. Mesonotal praescutum shiny obscure yellow with a broad, dark brown, median stripe that becomes bifid and obliterated shortly before the suture; lateral stripes not well indicated; scutum whitish, each lobe dark brown; scutellum dark brown, with a capillary pale median vitta; postnotum dark brown, paler laterally. Halteres long and slender, dark brown, the base of the stem paler.

Legs with the coxae obscure yellow, the fore coxae darker; trochanters obscure yellow; femora light brown; remainder of the legs darker brown.

Wings yellowish subhyaline, the stigma very pale brownish yellow; veins brown. Venation: *Sc*1 ending just before the origin of *Rs*, *Sc*2 some distance before this tip, *Sc*1 alone being a little longer than the basal deflection of *M*1+2; *Rs* about one-

third longer than the deflection of *R*4+5; tip of *R*1 beyond *r* indistinct; cell *1st M2* closed, subrectangular; basal deflection of *Cu*1 much shorter than *Cu2*, placed just beyond the fork of *M*.

Abdominal tergites uniformly dark brown; sternites uniformly obscure brownish yellow, the terminal segments a little darker.

Holotype: ♂, La Granja, Alta Gracia, Córdoba, April 1-8, 1920, (C. Bruch). *Allotopotype*: ♀.

Dicranomyia patruelis is closely allied to *D. flavofascialis* but is readily told by the uniform femora and abdomen, the subhyaline wings with the stigma pale, and the different coloration of the body.

Dicranomyia globulicornis sp. n.

Antennae uniformly dark brown, the basal flagellar segments subglobular; head grayish brown, the orbits clearer gray; mesonotum yellowish buff, the praescutum with four, narrow, brownish gray stripes, the scutellum and postnotum whitish, pruinose; legs brown; wings hyaline, highly iridescent; stigma pale brown; *Sc* short, *Sc2* far before the tip of *Sc*1; cell *1st M2* closed; abdominal segments uniformly brown.

♂. Length about 5.8 mm.; wing 6.5-6.8 mm.

Rostrum and palpi dark brown; rostrum slightly produced. Antennae dark brown throughout, the basal five or six segments of the flagellum nearly globular, the succeeding segments passing into oval, the terminal segments elongate. Head grayish brown, the orbits broadly paler gray; head strongly narrowed behind; vertex between eyes wide.

Pronotum large, dark brown medially, paler laterally. Mesonotal praescutum yellowish buff with four, narrow, brownish gray stripes, the intermediate pair narrowly separated and not attaining the suture; scutum pale grayish white medially, the centers of the lobes dark brownish gray; scutellum and postnotum pale, covered with a sparse white bloom. Pleura pale reddish yellow, covered with a sparse white bloom. Halteres short, pale, the knobs indistinctly darker.

Legs with the coxae shiny reddish brown; trochanters obscure yellow; femora pale brownish yellow; remainder of the legs brown.

Wings hyaline, highly iridescent; stigma pale brown; veins brown. Venation: *Sc* short, *Sc*1 ending before the origin of *Rs*, the distance about equal to *m*; *Sc2* far from the tip of *Sc*1, the latter vein alone thus being very long, only a little shorter than *Rs* and a little longer than the deflection of R4+5; cell *1st M2*

closed; *m* about two-thirds the outer deflection of *M*3; basal deflection of *Cu*1 longer than *Cu*2, placed at or before the fork of *M*.

Abdomen uniformly brown, the tergites a little darker colored.

Holotype: ♂, Tilcara, Province of Jujuy, March 20, 1920, (V. Weiser). *Paratopotype*: ♂.

Dicranomyia jujuyensis sp. n.

Mesonotal praescutum with an obscure yellow median stripe, the posterior half of the sclerite with four, narrow, dark brown stripes; scutal lobes with a dark brown ring; halteres yellow, the knobs dark brown; wings subhyaline, with a heavy reticulate pattern; *Sc* long, cell *1st M2* closed; abdomen uniformly reddish brown.

♂. Length 4.8 mm.; wing 5.8 mm.

The unique type is not fully matured. Rostrum relatively long and slender, brown, sparsely pollinose; palpi dark brown. Antennae with the first segment brown, the second segment and basal segments of the flagellum paler, distal flagellar segments brown. Head with a sparse, grayish yellow pollen, the center of the vertex with a brown mark.

Pronotum pale, sparsely pollinose. Mesonotal praescutum with a broad, median, obscure yellow stripe, the posterior half broadly margined with dark brown, the mesal margin of the usual lateral stripes similarly dark brown, the interspaces silvery white, pruinose; lateral margins of the sclerites obscure yellow; scutum silvery white, each lobe obscure yellow, encircled by a broad, dark brown marking; scutellum silvery; postnotum obscure yellow, sparsely pollinose. Pleura brownish yellow. Halteres yellow, the knobs dark brown.

Legs long and slender, the coxae and trochanters yellow; remainder of the legs not fully colored, apparently to become dark brown with the femoral tips paler.

Wings subhyaline with a conspicuous reticulate brown pattern, the heavier areas being at the origin of *Rs*, before midlength of cells *Sc* and *R*; near midlength of *M*; a conspicuous stigmal area that extends onto the deflection of *R*4+5; a large, conspicuous area occupying the outer end of cell *2nd R*1, the centers of cells *R*3 and *R*5; all the other cells of the wing with conspicuous spots, clouds and transverse bars; costa yellow with about 22 subequal dark brown marks alternating with yellow areas that are usually much wider; remaining veins pale brown. Venation: *Sc* long, *Sc*1 ending beyond midlength of the long *Rs*, *Sc*2 at the tip of *Sc*1; *r* at the tip of *R*1; *Rs* long, square and spurred at origin; cell *1st M2* closed; outer deflec-

tion of *M*3 about twice the length of *m;* basal deflection of *Cu*1 before the fork of *M*, the distance being about equal to *r-m*.

Abdomen reddish brown, possibly darker when fully colored.

Holotype: ♂, Tilcara, Province of Jujuy, March 20, 1920, (V. Weiser).

In its reticulate wing-pattern, *D. jujuyensis* bears a certain resemblance to *D. reticulata* (Alexander) of Cuba and Southern Florida, but is readily told by the long subcosta and the details of coloration.

Color Preference of Bees (Hymen.).

Lately there has come a statement that bees are largely given to visiting blue, purple or violet flowers, although not totally ignoring yellow or red ones. Bees are heterotropic. They have become diversified along with the entomophilous flora. Of 437 local flowers whose visitors were observed, 96.2 per cent are visited by bees. There are only three on which I am sure bees never occur. The colors of the local flora are red (all dark colors) 29.4 per cent, yellow 30.7, white 39.8. Of the flowers observed 30.2 per cent are red, 30.6 yellow, 39.1 white, showing a little discrimination in favor of red flowers. The flowers visited by bees show red 28.7 per cent, yellow 31.1, white 40.0. Of 6063 bee visits 23.1 per cent are to red, 33.5 to yellow, 43.2 to white. The flowers visited and visits made are about what might be expected without regard to color. The determining condition is the situation of the nectar, which is most accessible in white flowers and the least in red ones. Of local bees only 70 (23.6 per cent) are largely given to visiting red flowers. Of their visits, 45.9 per cent are to red, of the visits of 96 other species, 52.9 per cent are to yellow, while of the visits of the remaining 130 species, 55.9 per cent are to white.

When a statement about bee visits is made, one would like to know the percentages of red in the flora referred to, in the flowers observed and in the visits recorded. In the Alps 57.1 per cent of the bee visits were to red flowers, but these were about 48 per cent of the flowers observed, and the visits of insects of all classes showed 41.6 per cent under that color. In the Berlin Garden 55.4 per cent of bee visits were to red, but such flowers were 48.2 per cent of the flowers observed, indicating that they had been selected.

The general statement criticized here would be more correct if applied to hawk-moths or to butterflies.—CHARLES ROBERTSON, Carlinville, Illinois.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., FEBRUARY, 1924.

Entomology at the Convocation Week Meetings, December 27, 1923 to January 2, 1924.

The meetings of the American Association for the Advancement of Science and of Associated Scientific Societies were held at Cincinnati, Ohio, on the dates mentioned above. The occasion was the Seventy-fifth Anniversary of the A. A. A. S., the third of its meetings in the "Queen City of the West."

Papers relating, in whole or in part, to the tracheate Arthropods were listed on the programs of the following seven organizations, a smaller number of societies than were represented on the list for last year (see the NEWS for February, 1923, page 55).

American Society of Zoologists (alone)	9
The same with the Ecological Society of America	3
The same with the Botanical Society of America (joint Genetics Section)	6
Entomological Society of America	70
American Association of Economic Entomologists (including its sections on Apiculture and Horticultural Inspection	89
American Phytopathological Society	1
Ecological Society of America (alone)	1
A. A. A. S. Section N, Medical Sciences	1
Total	180

The 180 papers were concerned with the following subjects:

Cytology	1	Insecticides and Fumigants	24
Anatomy	7	Apiculture	14
Histology	1	Araneina	2
Physiology	11	Acarina	4
Ontogeny	4	Orthoptera	6
Genetics	6	Ephemerida	1
Geographical Distribution.	4	Odonata	1
Taxonomy	2	Mallophaga	1
Ecology	48	Anoplura	2
Parasites of Insects	7	Neuroptera	1
Relations to Man	2	Homoptera	17
General Economic Entomology	26	Heteroptera	12
Insects Injurious to Plants	20	Thysanoptera	2
		Coleoptera	16

Hymenoptera (excluding *Apis*)	11	Diptera (excluding *Drosophila*)	9
Apis	6	*Drosophila*	6
Trichoptera	1	Siphonaptera	1
Lepidoptera	14		

Many of these figures are duplicated; thus the papers on *Drosophila* appear also under Genetics.

The large number of papers credited to Ecology is due to the extensive symposium of the Entomological Society of America on "Methods of Protection and Defense Among Insects," divided into five parts: *a* Protective Structures; *b* Protective Constructions; *c* Protective Size, Form and Color; *d* Protective Positions, and *e* Protective Behavior or Reactions, and listing 41 separate papers and authors. To it also is partly due the highest total (180 papers) yet presented at a Convocation Week.

The American Association of Economic Entomologists had two symposia: one on "Methods of Estimating Insect Abundance and Damage" (8 speakers listed); the other on the "European Corn Borer" (9 speakers listed).

The Ecological Society of America had a symposium on "Ohio Ecology," including one paper on Insects (Odonata, Prof. C. H. Kennedy).

The annual address before the Entomological Society was by Prof. James G. Needham, of Cornell University on "The Rôle of Insects in Food Production." The Presidential address to Economic Entomologists was by Mr. A. G. Ruggles, State Entomologist of Minnesota, on "Pioneering in Economic Entomology."

It is a matter of regret that none of the Editors of the NEWS were able to be present at Cincinnati, but, thanks to the kindness of Dr. Annette F. Braun, we are able to add a statement of the numbers participating in the sessions. Dr. Braun writes:

The following figures will give an idea of the attendance at the Entomological meetings in Cincinnati.

Entomological Society of America. Thursday afternoon session, December 27, 92; Friday morning, December 28, 125*; Friday afternoon, December 28, 178*: Saturday morning, De-

cember 29, 95; Saturday afternoon, 50-75; Saturday evening, 125.

The figures marked * approximate the number of different persons present at some time during the session; not all were present at one time. In the Friday afternoon session, there were about 150 in the room at the same time throughout the session.

The Economic Entomologists had an average attendance of about 175. About 200 were present at one time or another.

The total registration at Cincinnati nearly equalled that of the 1920 meeting in Chicago.

Notes on Corythucha marmorata Uhler in New Jersey (Hemip.: Tingitidae).

Since Dr. Felt's account of this species, in the *19th Report of the State Entomologist of New York* (N. Y. St. Mus. Bul. 76, P. 125, 1903), practically nothing has appeared concerning its life history and the following notes are intended as supplemental. At Mendham, New Jersey, on July 24, the species was noted as being very abundant and injurious to wild asters. Eggs, all nymphal stages and adults were present and the leaves of the plants were so injured that they were almost white, many of them being withered from the attacks of the nymphs. Eggs were observed in the tissue of the undersides of the leaves close to the mid and side ribs and sometimes in the tissue of the ribs. They were laid in irregular, elongate masses parallel to the ribs, some of the masses being made up of from 4 to 75 eggs placed with little or no regularity. Some leaves contained as many as 150 eggs. As a rule only the cap of the egg projected above the leaf tissue, but in a few cases the eggs appeared to have been carelessly laid and fully one half was exposed. The location of the eggs could be detected readily by reason of the brown, varnish-like excrement which was placed over them, the streaks of this material being quite pronounced along the mid-ribs. Eggs were noted in leaves badly injured by nymphal feeding as well as in uninjured leaves. The nymphs feed in colonies on the lower leaf surfaces, the newly hatched ones always being found close to the eggs from which they hatched. Colonies numbering from 6 to 100 individuals were noted and in quite a few instances, an adult female was near each colony of nymphs. The eggs and early stages were described by Dr. Felt and since his paper, the species has been mentioned often in systematic literature and faunal lists. —Harry B. Weiss & Ralph B. Lott, New Brunswick, N. J.

Note on the mating of Anopheles maculipennis (Dipt.; Culicidae).

While on a visit in Holland the mating of *A. maculipennis* was observed during several evenings. The observations were made in Gelderland, not far from the Rhine, in the middle of June and on the days of July 3 to 8 inclusive.

After a period of cold, with rainy days, the weather improved and the temperature increased. On June 16 at 8.45 P. M. a small swarm of *A. maculipennis* males were seen hovering at the windward side of some lilac bushes. Three pairs of copulating anopheles* were kept under observation for 20 to 35 seconds until they separated.

On July 3, at 8.30 P. M. a number of small swarms of males of *A. maculipennis* were noticed on the windward side of some small pear trees. The swarms were composed of from 50 to 100 individuals. The movements of the insects were free and varied, circling upward and downward, back and forth, with their heads against a gentle breeze. The movements were often very irregular, individuals leaving the swarms and returning after a few seconds. Suddenly a female was seen entering the swarm causing a decided disturbance. The males were excited and made an extreme high singing sound.

In the course of 6 successive evenings swarm formation was observed. The formation of columns started about 7.30 P. M. and ended about 9.15-9.30 P. M. (Sun set 8.30-8.45). A few males would gather and as time went on others joined and took part in the dancing. It was repeatedly seen that a female entered the swarm, caught a male and flew away copulating end to end. In every case the female led off and dragged the male behind, flew for a short time and separated. The time of union lasted from 30 to 55 seconds. The temperature on these evenings ranged from 64 to 67° F. One copulating pair was seen to fly to a resting place at the edge of the thatched roof of the farm house about 5 feet above the ground. The united pair rested quietly for about 30 seconds, when the male flew away and the female shortly afterwards.

It was interesting to notice that swarms started to form first and hovered on the windward side of English walnut trees, then on the windward side of pear and apple trees, while only once a small swarm was observed at the end of a branch of linden trees. On the edges of the large walnut trees from 20 to 30 small swarms were counted. It is the common belief that English walnut trees are a protection against mosquitoes.

* One pair caught while copulating was determined by Dr. L. O. Howard a few days later as *A. maculipennis*, while others were determined later.

Swarming was much more pronounced near the dwelling than near the chicken pen or empty stable. The nearest pigsty was about 300 yards away. In the proximity of these pigsties swarming and mating took place during the same evenings, although in apparent smaller numbers.—WILLEM RUDOLFS, Biochemist in Entomology, New Jersey Agricultural Experiment Stations, New Brunswick, N. J.

A Gynandromorph of Odynerus conformis Sauss. (Hymenoptera, Aculeata).

On August 21st, 1923, while collecting at Glen Echo, Md., I captured a gynandromorph of *Odynerus* (*Stenodynerus*) *conformis* Sauss. The right antenna is male, and the left female, but the clypeus is colored as in the females on the right side, being yellow only on the upper third and the apical tooth is longer than on the left side which is entirely yellow as in typical males of this species. The yellow spot between the bases of the antennae reaches only midway to base of antenna on the right side while it extends to the base on left side, another reversal of color similar to that on clypeus. On the right side the mid and hind coxae are pale yellow in front, while on the left side they are entirely black; the pale spots are characteristic of the male. The mid femur is yellow on anterior side from base to apex on right side (male), and yellow only on apical third on left side (female). The left fore tarsus is noticeably broader than the right one and the left fore wing is 1 mm. longer than the right one (7.8 mm.), the right side evincing male characters. The genital organs are those of a typical female. The specimen was specifically identified by Mr. S. A. Rohwer.—J. R. MALLOCH, Washington, D. C.

An Hermaphrodite Hesperid (Lepid.: Rhop.).

Among some Hesperiidae collected by the author at Oakdale, Long Island, New York, on July 1, 1923, was a somewhat worn specimen of *Polites manataaqua* Scudder combining the characters of both sexes of this species. The specimen is of the size of the normal female and of the general brownish color of that sex; on the right primary is a distinct stigma corresponding to that found in the male, of the same shape and length but slightly narrower and is followed on its outer border by the usual dark patch of scales; the two spots found below the end of the cell are present in both primaries but in the right primary the lower and normally larger, subquadrate spot of the female is greatly reduced, being about half as wide as that of the left primary and corresponding to the form of this spot in the male; the upper subtriangular spot is of the same size in

both primaries and about normal; the left primary is rounded on its outer margin as in the normal female, but the right primary has the outer margin straighter and at a point opposite the upper end of the stigma is curved slightly inward and then straight up to the apex, which is nearly as pointed as in the male.

There is a narrow ray of tawny scales in the cell of both primaries, extending from the base of the cell for about two-thirds the length; the ray in the cell of the right primary is slightly wider for its entire length than that of the left primary; this ray is not present in any of the normal female specimens in my collection, though occasionally a female is found with a small tawny spot in the cell near the end, and seems to indicate in this specimen the tawny area usually found in the normal male.

The general appearance of the under surface of both wings is about as in the normal female except that there is a complete absence of the band of spots usually found on the secondaries.—E. L. BELL, Flushing, New York.

Entomological Literature

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

Papers of systematic nature will be found in the paragraph at the end of their respective orders. Those containing descriptions of new genera and species occurring north of Mexico are preceded by an *.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

The titles occurring in the Entomological News are not listed.

4—Canadian Entomologist, Guelph, Canada. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **13**—Journal of Entomology and Zoology, Claremont, Cal. **15**—Insecutor Inscitiae Menstruus, Washington, D. C. **16**—The Lepidopterist, Salem, Mass. **19**—Bulletin of the Brooklyn Entomological Society. **30**—Tijdschrift voor Entomologie, The Hague, Holland. **39**—The Florida Entomologist, Gainesville, Florida. **54**—Proceedings of the Biological Society of Washington, D. C. **68**—Science, Garrison on the Hudson, N. Y. **69**—Comptes Rendus, des Seances de l'Academie des Sciences, Paris. **82**—The Ohio Journal of Science, Columbus, Ohio. **85**—The Journal of Experimental Zoology, Philadelphia. **119**—Proceedings of the National Academy of Sciences of the U. S.

A., Washington, D. C. **132**—Revista do Museu Paulista, Sao Paulo, Brazil. **147**—Archiv fur Mikroskopische Anatomie und Entwicklungsmechanik, Berlin. **153**—Zeitschrift fur angewandte entomologie. Herausg. von K. Escherich, Berlin.

GENERAL. Baker, A. W.—Diamond jubilee meeting of the entomological society of Ontario, 1923. **4,** lv, 293-4. **Buxton, P. A.**—Two further cases of co-ordinated rhythm in insects. **9,** 1923, 271-3. **Janische, E.**—Ueber alterserscheinungen bei insekten und ihre bekampfungsphysiologische bedeutung. **118,** 1923, 929-31. **Rothschild, N. C.**—Obituary. **8,** 1923, 279-80. **9,** 1923, 284-6. **Searle, J.**—Medium for mounting small insects. (Vict. Nat., xl, 140.) **Stoner, D.**—On the abundance of tropical terrestrial arthropods. **19,** xviii, 162-3. **de la Torre-Bueno, J. R.**—The crumbs of Dives (editorial). **19,** xviii, 170-1.

ANATOMY, PHYSIOLOGY, MEDICAL, ETC. Ferry, Lancefield, & Metz.—Additional mutant characters in Drosophila willistoni. (Jour. Heredity, xiv, 373-84.)

ARACHNIDA AND MYRIOPODA. Levy, R.—Sur le mecanisme de l'hemolyse par le venin de scolopendre. **69,** clxxvii, 1326-8. **Stekhoven, J. H. S.**—Zur biologie der kratzmilben. (Verh. Kon. Akad. V. Weenns. te. Amsterdam., xxi, No. 2.)

Bryant, E. B.—Report on the spiders collected by the Barbados-Antigua expedition. . . (Univ. Iowa Stud., x, No. 3, 10-18.) **Chamberlin, R. V.**—A new cryptodesmoid milliped from Santo Domingo. **54,** xxvi, 189-90. **Ewing, H. E.**—The generic and specific name of the orange rust mite. **39,** vii, 21-2. **Leitac, M.**—Theraphosoideas do Brasil. Arachnideos da ilha dos Alcatrazes. **132,** xiii, 5-438; 515-25. **Oudemans, A. C.**—Studie over de sedert 1877 ontworpen systemen der Acari; nieuwe classificate; phylogenetische beschouwingen. **30,** lxvi, 49-85.

THE SMALLER ORDERS OF INSECTA. Cleveland, L. R.—Symbiosis between termites and their intestinal protozoa. **119,** ix, 424-8. **van Heurn, W. C.**—Over een waarschijnliike parasiet (Thripoctenus brui) en een vermoedelijke hyperparasiet van Thrips tabaci. **30,** lxvi, 119-28.

Navas, P. L.—Algunos insectos del Brasil. **132,** xiii, 767-74. **Priesner, H.**—Ein beitrag zur kenntnis der Thysanopteren Surinams. **30,** lxvi, 88-111.

HEMIPTERA. Dingler, M.—Beitrage zur kenntnis von Lecanium hesperidum, besonders seiner biologie. **153,** ix, 191-246. **Funkhouser, W. D.**—New host for Membracidae. **19,** xviii, 156. **Marcovitch, S.**—Plant lice and light exposure. **68,** lviii, 537-8. **Olsen, C. E.**—Distributional notes on Hemiptera. **19,** xviii, 163-4.

Barber, H. G.—Report on certain families of Hemiptera-heteroptera collected by the Barbados-Antigua expedition. . . (Univ. Iowa Stud., x, No. 3, 17-29.) ***Dodds, C. T.**—A new salt marsh mealy bug. **13,** xv, 57-60. **Hempel, A.**—Hemipteros novos ou pouco conhecidos da familia Aleyrodidae. **132,** xiii, 1119-91. **Porter, C. E.**—Insecto nuevo de la fam. Berytidae. (Rev. Chile. Hist. Nat., xxvii, 20-1.) **de la Torre-Bueno, J. R.**—Report on the Aquatic Hemiptera collected by the Barbados Antigua expedition. . . . (Univ. Iowa Stud., x, No. 3, 30-8.) ***de la Torre-Bueno, J. R.**—A saldid genus new to the U. S. and new sps., with notes on other water bugs from the Adirondacks. **19,** xviii, 149-54.

LEPIDOPTERA. Bell, E. L.—Notes on Calpodes ethlius. (Rhopalocera.) Polygonia progne on Long Island. **19,** xviii, 154; 164-5. **Chittenden, F. H.**—Note on Ogdoconta cinereola. **19,** xviii, 155-6. **Hutchings, C. B.**—A note on the monarch or milkweed butterfly with special reference to its migratory habits (Can. Field-Nat., xxxvii, 150). **Jurriaanse, J. H.**—Some remarks about the supposed scent-organs of the genus Opsiphanes. **30,** lxvi, 147-51.

***Barnes & Benjamin.**—The change of a preoccupied name. Notes on the types of two recently described aberrations of Basilarchia archippus. **16,** iv. 17; 29-30. ***Cassino & Swett.**—New geometrids. Some new Eupithecias. **16,** iv, 18-24; 25-9. **Coolidge, K. R.**—California butterfly notes. **19,** xviii, 159-61. **Kaye, W. J.**—A striking new lycaenid from St. Vincent, B. W. I. **9,** 1923, 277. **Schaus, W.**—New sps. of American Geometridae in the U. S. N. M. **15,** xi, 149-67.

DIPTERA. Brelje, R.—Ein fall von zwitterbildung bei Aedes meigenanus. **147,** c, 315-343. **Freeborn, S. B.**—The range overlapping of Anopheles maculipennis and A. quadrimaculatus. **19,** xviii, 157-8. **Glaser, R. W.**—The effect of food on longevity and reproduction in flies. **85,** xxxviii, 383-412. **Jacobson, E.**—Micro-dipteren als ectoparasiten enderer insekten. **30,** lxvi, 135-6.

Bonne, C.—The male hypopygium of Chagasia farjardi and the systematic position of this sp. The male hypopygium of Anopheles mediopunctatus. The eggs of A. mediopunctatus. **30,** lxvii, 112-14; 115-17; 118. **Borgmeier, T.**—Una nova especie termitophila de Dohrniphora. . . . **132,** xiii, 1213-24. ***Curran, C. H.**—New cyclorrhaphous diptera from Canada. **4,** lv, 271-9. **Dyar, H. G.**—The mosquitoes of Panama. A new Culex from Mexico. On some of the American subgenera of Culex. **15,** xi, 167-86; 186-7; 187-90. ***Hull, F. M.**—Notes on the family Syrphidae with the description of a n. sp. **82,** xxiii, 295-8.

COLEOPTERA. Bernet Kempers, K. J. W.—Iets naar aanleiding van d'Orchymonts "Apercu de la nervation alaire des coleopteres." **30,** lxvi, 129-34. **Campbell, R. E.**—Notes on the life-history of Dinapate wrightii. **13,** xv, 61-5.

Barber, H. S.—A remarkable wingless glow-worm from Ecuador. **15,** xi, 191-4. **Bondar, G.**—Notas biologicas sobre alguns buprestideos brasileiros do genro Colobogaster. **132,** xiii, 1265-76. ***Frost, C. A.**—New sps. of Buprestidae from the U. S. **4,** lv, 279-81. **Melzer, J.**—Longicorneos novos, ou pouco conhecidos, do Brasil. **132,** xiii, 529-33. **Obenberger, J.**—Eine serie neuer Buprestidenarten. **30,** lxvi, 1-32.

HYMENOPTERA. Bequaert, J.—Ants accidently introduced into New York and New Jersey; and a correction. Neopasites and Polyergus at White Plains, New York. **19, xviii,** 165; 171. **Savin, W. M.**—A wasp that hunts cicadas. (Nat. Hist., xxii, 569-75.)

Fattig, P. W.—The bumble-bees of Florida. **39,** vii, 25. **Santschi, F.**—Description de quelques nouvelles fourmis du Brasil. **132,** xiii, 1253-64. **Wheeler, W. M.**—Report on the ants collected by the Barbados-Antigua expedition. (Univ. Iowa Stud., x, No. 3, 3-9.)

SPECIAL NOTICES.

Lepidoptera: Some new Coenocharis. This is the title of a paper in The Lepidopterist of which the author is not given. Two new species from the western states are described.

The Mystery of the Hive, by E. Evrard, translated from the French by B. Miall. New York, Dodd Meade & Co., 1923, 369 pp. This book will be found of interest to

the general reader who cares for nature and her children; wherein he will find out all about the home life of the honeybee. The concords and discords of the bee family are told here in a very readable and understandable manner. Price, $2.50.

NINETEENTH REPORT, STATE ENTOMOLOGIST OF MINNESOTA to the Governor. By A. G. RUGGLES, St. Paul, Minn. Published Nov. 1, 1923. 151 pp., 3 pls. This latest addition to a well and favorably known series covers the two years ending December 1, 1922. Mr. Ruggles discusses the principal insect problems of the biennium, naming 13 insects, or groups of insects, which attracted special attention for their economic importance (pp. 3-9) and, in conjunction with J. R. Eyer, gives Preliminary Notes on the Life History and Control of the Potato Leaf Hopper, *Empoasca mali* Le B. (pp. 10-14). S. A. Graham gives the results of investigations on the Red Turpentine Beetle (*Dendroctonus* valens Le C.) in Itasca Park, Minn. (pp. 15-21) and an interesting summary of his studies on the Effect of Physical Factors in the Ecology of certain Insects in Logs (pp. 22-40). His experiments "have shown conclusively that the activities of wood-boring insects are controlled very decidedly by the action of external factors and that the zone of their optimum development is often very narrow. [Thus] on the upper side of logs [in the open] are found only insects which are most resistant to heat, such as Chrysobothris. . . . . Under three-quarters shade. . . . no Chrysobothris was present." The economic value of such researches is evident. Paul M. Gilmer contributes an informing paper on Derris as an insecticide (pp. 41-49). H. H. Knight has some valuable Studies on the Life History and Biology of Perillus bioculatus including observations on the nature of the color pattern (pp. 50-96, 3 pls.) C. E. Mickel furnishes Preliminary Notes on the Mutillidae of Minnesota with descriptions of three new species (pp. 97-113) and O. W. Oestlund A Synoptical Key to the Aphididae of Minnesota (pp. 114-151), a revision of his Synopsis of 1887, accompanied by a phylogenetic tree of the tribes.—P. P. CALVERT.

REPORTS ON CERTAIN ARTHROPODS . . . . OF THE BARBADOES-ANTIGUA EXPEDITION of 1918. University of Iowa Studies in Natural History, X, No. 3. Iowa City, Aug. 1, 1923.—These reports are on the Ants by Prof. W. M. Wheeler, the Spiders by Elizabeth B. Bryant, Certain Families of Hemiptera-Heter-

optera (Coreidae, Pyrrhocoridae, Lygaeidae, Reduviidae Tingidae) by H. G. Barber, and on the Aquatic Hemiptera (6 families) by J. R. de la Torre-Bueno. The last three reports are, so far as these two islands are concerned, based entirely on the material collected by the University of Iowa Expedition. Prof. Wheeler has included Barbados and Antigua records derived from other sources in a list of 26 forms, including one new variety. Twenty-nine species of spiders (six new), 24 species of terrestrial Heteroptera (1 Reduviid new) and 10 species of aquatic Heteroptera (1 Corixid, 1 Belostomid new) are listed from these two islands. No generalizations on geographical distribution are contained in any of these four reports, but Mr. de la Torre-Bueno exposes the unsatisfactory condition of the taxonomy of the aquatic Hemiptera.—P. P. CALVERT.

OBITUARY.

The Hon. NATHANIEL CHARLES ROTHSCHILD, who died October 12, 1923, was a wealthy banker, who from boyhood had a keen love for all nature. He elected to make a special study of a somewhat neglected field in Entomology which has become of the greatest importance to humanity, in relation to the transmission of epidemic and endemic, high mortality diseases. He took up the study of the Ectoparasites, particularly Siphonaptera. He did splendid work on these interesting insects and in conjunction with Dr. Karl Jordan, published more than 138 articles. There are now known nearly 700 species of fleas and in 1880 only about 33 were recorded. Mr. Rothschild always took a great interest in the Lepidoptera, and had a collection. He paid particular attention to the biological aspect of these insects. His splendid collection of Siphonaptera, with ten thousand pounds, he willed to The British Museum. He took a great interest in places of historic value or natural beauty and was an advocate and patron in this line of endeavor. Full articles on the life work of Mr. Rothschild will be found in the British entomological journals. The writer wishes to pay tribute to the memory of the gentleman, who was a handsome man, modest, able, kindly and generous, and the news of his death was learned with sincere sorrow and keen regret.—HENRY SKINNER.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

I will collect Coleoptera and Lepidoptera in southwest Arkansas for those so interested.—Miss Louise Knobel, 417 West 2nd Avenue, Hope, Arkansas.

Correspondence solicited from anyone desiring general collections of insects, to be made in Costa Rica. Austin Smith, Apartado 412, San José, Costa Rica.

Wanted—Am working on a Revision of the Buprestidae of the West Indies and would like to examine any material in this family from that region. W. S. Fisher, U. S. National Museum, Washington, D. C.

For Exchange—A large number of Papilio Turnus, P. Cresphontes and P. Ajax pupae, or the same specimens in papers, for other pupae or Lepidoptera. Carl Selinger, 4419 Dover St., Chicago, Ill.

Coleoptera for exchange—Cicin. generosa, hirticollis, modesta, sexguttata, 12-punctata, Saperda populnea, Uro. fasciata, Donacia subtilis, palmata, texana-minor, biimpressa, refuscens. Ernest Baylis, 5011 Saul St., Philadelphia, Pa.

Endomychidae. I desire to purchase representatives of this family from any part of the world. Particularly desire specimens from the western and southwestern part of the U. S. L. B. Walton, Kenyon College, Gambier, Ohio.

Buprestidae, Cleridae and **Carabinae** wanted from U. S. or Buprestidae of the world. Will collect insects of any group (except Lepidoptera) in exchange or pay cash. Alan S. Nicolay, 416a Grand Ave., Brooklyn, New York.

Lepidoptera. Hesperiidae (Skipper-butterflies). Will purchase, exchange or name specimens. North or South America. Pamphila comma group particularly desired. Henry Skinner and R. C. Williams, Jr., Address Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

Lepidoptera-Noctuidae. Will purchase or exchange moths of this family for western lepidoptera. Chas. A. Hill, P. O. Box 653, Glendale, Cal.

Wanted—Ants from all portions of the United States for determination or exchange. Will also exchange other insects for ants. M. R. Smith, Assistant Entomologist, State Plant Board, A. and M. College, Miss.

Wanted in exchange or cash 1000 Precis orithya ♂, Precis isoratia ♂, Precis mevaria ♂. A. F. Porter, 104 W. Broadway, Decorah, Iowa.

Cynipidae. Galls and bred wasps wanted to determine or in exchange. Alfred C. Kinsey, Indiana University, Bloomington, Indiana.

Wanted—Saturnioidea and their living pupae, especially io, luna and Anisota. D. M. Bates, Agric. Exp. Sta., Gainesville, Fla.

For Exchange.—Living pupae of Automeris io and Papilio asterias and unnamed coleoptera from India for Catocalae or N. A. coleoptera. Mrs. Robert Milde, Lewiston, Minnesota.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA, PA.

DIPTERA.

839.—**Landis** (E. M.).—A tabular account of the structural differences between the four larval instars of Culex pipiens. (Trans., **49**, 25-42, 1923) ..... .35

COLEOPTERA.

844.—**Davidson** (W. M.).—Biology of Scymnus nubes Casey. (Trans., **49**, 155-163, ill., 1923) ..... .20

LEPIDOPTERA.

842.—**Braun** (A. F.).—Microlepidoptera: notes and new species. (Trans., **49**, 115-127, 1923) ..... .25

843.—**Skinner & Williams.**—On the male genitalia of the Hesperiidae of North America. Paper III. (Trans., **49**, 129-153, ill., 1923) ..... .30

NEUROPTERA.

841.—**Dodds** (G. S.).—Mayflies from Colorado. Descriptions of certain species and notes on others. Trans., **49**, 93-114, 2 pls., 1923) ..... .50

ORTHOPTERA.

840.—**Rehn** (J. A. G.).—North American Acrididae. Paper 3. A study of the Ligurotettigi. (Trans., **49**, 43-92, 2 pls., 1923) 1.00

845.—**Hebard** (M.).—Studies in the Dermaptera and Orthoptera of Colombia. Paper III. Orthopterous family Acrididae. (Trans., **49**, 165-313, 8 pls., 1923) 3.25

Of Interest to Specialists.

The American Entomological Society has placed in operation a system by which entomologists who are not situated near the larger reference libraries, or who desire to build up special entomological libraries of their own and yet do not care to subscribe to the annual volume of the Society's "Transactions," may secure copies of the papers appearing in the Society's publications promptly after their receipt from the press.

If you are interested and desire to avail yourself of this system, advise us of the order or orders in which you wish to secure publications, together with a remittance of $1.00 or more as a deposit, and all papers on such orders will be mailed to you directly on their receipt from the printer. These will be charged against your amount of deposit at 25 per cent. discount from the list or general sale price. Any balance to your credit is returnable on demand should you not care to continue the subscription.

THE LARGEST STOCK OF INSECTS OF THE WORLD!

ESTABLISHED 1858

INDISPENSABLE TO EVERY COLLECTOR, TO EVERY MUSEUM!

Lepidoptera List No. 58 contains 28,000 species, the greatest and most extensive of all lists. Price **$1.00.**

Coleoptera List No. 30 contains 30,000 species of Coleoptera. Price **50 cents.**

Other Insects list **No. VII** contains 10.000 species. Price **50 cents.**
This amount will be reimbursed by orders on insects.

List No. XI contains series of Lepidoptera, collections, books, apparatus, insect pins, supplies. **Free.**

Dr. O. Staudinger & A. Bang-Haas, Blasewitz-Dresden, Germany

WILL BUY OR EXCHANGE

Clerids, Phanaeus, Monilema and all Cetonids from all parts of the world.

DR. FRANK J. PSOTA.

4046 West 26th Street **Chicago, Illinois**

Brilliant Exotic Butterflies, Moths

and other material from Colombia, Venezuela and Brazil for scientific and decorative purposes. Price list on application.

HERBERT S. PARISH, 81 Robert Street, Toronto, Ontario.

Brilliant Butterflies from the Tropics.

I specialize in Tropical Butterflies suitable for Jewelry, Trays, Plaques, etc., as well as rarities for collections and scientific uses. A large stock of Ornithoptera, Morpho, Agrias, Caligo, Papilio, Catagramma, Perisema, Callicore, Thecla, Lycaena, etc., on hand. Tell me for what purpose you require butterflies and I will then be better able to meet your needs.

HAL NEWCOMB, 804 Elizabeth St., Pasadena, California

Rhopalocera and Heterocera of the North Argentine.

Good species and first-class specimens, write to

RODOLFO SCHRIETER,

Tucuman, Argentine, calle 24 de Setiembre 1372c.

References by Mr. B. Preston Clark, Boston, Massachusetts, Kilby Street 55.

FOR SALE A large collection of butterflies—Papilios only—from all parts of the world. All mounted and classified in three large cabinets.

C. F. GROTH

14 POPLAR PLACE, NEW ROCHELLE, N. Y.

NEW ARRIVALS

From Colombia, South America:
OVER 10,000 BUTTERFLIES, INCLUDING

Morpho cypris
" sulkowskyi
Morpho amathonte
Caligo spp.

From Cuba:
1500 BUTTERFLIES AND MOTHS, INCLUDING

Papilio columbus
" andraemon
" celadon
" devilliersi
Urania boisduvali
Erinyis guttalaris
Protoparce brontes, etc.

From Venezuela:

Over 5000 Lepidoptera
200 Dynastes hercules

From New Guinea

2000 Coleoptera
200 Orthoptera

From Assam, India:
1200 BUTTERFLIES AND MOTHS, INCLUDING

Papilio arcturus
" philoxenus
Kallima inachis
Brahmaea wallachi

And Many Other Showy Species

From Tibet (Bhutan):

Armandia iidderdalii
Parnassius hardwicki

CATALOGUES OF
ENTOMOLOGICAL SUPPLIES AND SPECIMENS
ON APPLICATION

If interested kindly send your list
of desiderata for further information to

THE KNY-SCHEERER CORPORATION OF AMERICA

Department of Natural Science
G. Lagai, Ph.D.

New York
56-58 West 23d Street